

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



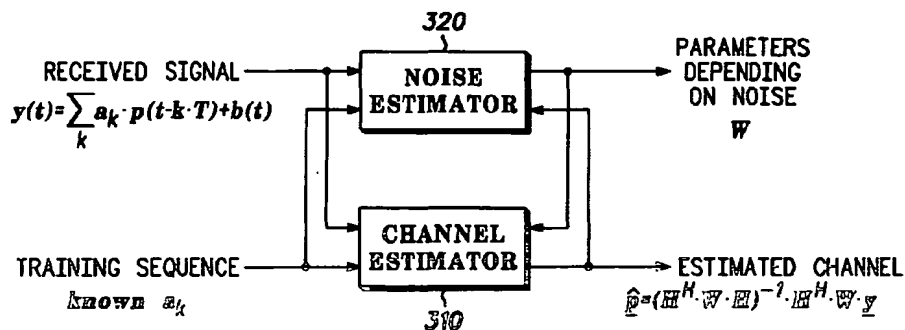
(43) International Publication Date
15 January 2004 (15.01.2004)

PCT

(10) International Publication Number
WO 2004/006522 A1

- (51) International Patent Classification⁷: **H04L 25/02** (74) Agent: MCCORMACK, Derek; Motorola European Intellectual Property Operations, Midpoint, Alencon Link, Basingstoke, Hampshire RG21 7PL (GB).
- (21) International Application Number: PCT/EP2003/006751
- (22) International Filing Date: 25 June 2003 (25.06.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 02291658.9 3 July 2002 (03.07.2002) EP
- (71) Applicant (for all designated States except US): MOTOROLA INC [US/US]; 1303 E. Algonquin Road, Schaumburg, IL 60196 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): DESPERBEN, Lydie [FR/FR]; Motorola S.A., Du General Eisenhower, F-31023 Toulouse (FR). VILLION, Mathieu [FR/FR]; Motorola S.A., Du General Eisenhower, F-31023 Toulouse (FR).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ARRANGEMENT AND METHOD FOR ITERATIVE CHANNEL IMPULSE RESPONSE ESTIMATION



(57) Abstract: An arrangement (300) and method, for iterative channel impulse response estimation in a system such as a GSM/EDGE system employing a transmission channel, by: producing (310) from a received signal (y) a channel impulse response estimate signal (p); and producing (320) from the received signal (y) a noise estimate signal (w) which is iteratively fed back to improve the channel impulse response estimate signal (p). The noise estimate signal comprises a matrix (w) representing the inverse of noise covariance; the matrix may be calculated at each iteration or may be selected from predetermined values corresponding to statistics of expected noise. This provides the advantages of reduced complexity, independence of the equalization method used to produce the channel impulse response estimate signal, and consequent performance improvement.

WO 2004/006522 A1